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NOTES ON SOME PLANTS OF TENNESSEE

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THIS annotated list was begun with the idea of recording plant range extensions based mostly on collections made in recent years. A considerably larger number of entries have been made than was anticipated. In a few cases, part or all of the data presented here, has been published, but in widely scattered papers and books. A goodly part of the paper, however, is devoted to information that is brand new. In all but a very few cases the entries record an extension of range for the plants listed. The notes about *Belamcanda chinensis* (L.) DC., *Conradina verticillata* H.M.J., *Phyllitis Scolopendrium* (L.) Newm., and *Viola renifolia* Gray are notable exceptions.

To be able to tell of two new stations where the rare Sapsuckbush, *Buckleya distichophylla* (Nutt.) Torr., was found growing is something worth noting, as is also the discovery last summer (1933) of Red Spruce, *Picea rubra* (Du Roi) Dietr., in the Shady Valley Swamp, a boreal relic bog in Johnson County, Tennessee, at an elevation of 2800 feet. Several other remarkable finds were made in this Swamp and a detailed report may be expected soon from my colleagues, A. J. Sharp and J. K. Underwood.

Bailey's new (1934) *Rubus tennesseanus*, and two or three less recently described novelties appear in the list. The total number of plant species reported on is 94, of which 10 are Pteridophytes, and 84 are Spermatophytes.

No small number of the entries made are based on data and collections gathered in the summer of 1933 when much of the field work we did was encouraged and sponsored by the Tennessee Valley Authority. Some significant additions were made in 1934. Evidently

there is much left to be learned about the flora of Tennessee in particular, and the southern mountains and valleys in general. Yet it is believed that quite a complete and finished Flora of this region could be brought forth in a few years if adequate support for field surveys and taxonomic studies could be had.

Studied from the point of view of the whole, one is bound to notice additional evidence in support of the theory that the Southern Appalachian mountain region is the place where plant populations of the eastern part of this country were evolved, and the field from which, later, migrating groups took off. We find also supporting evidence of the theory that the southern mountains and valleys were the "reservoir" in which many northern emigrants found a safe harbor and a place to live while the ice sheets made the north country uninhabitable. As is well known, representatives of practically all of the "best families" have remained, and are well established in the mountains of the south.

Furthermore, one notes that an ever increasing number of plants, indigenous to the Coastal Plain and other provinces are being turned up in Tennessee. In all probability, Tennessee was once nearer to a sea coast. If what the geologists tell us is true, we should not be surprised to find Coastal Plain species in western Tennessee. But, may we not be quite thrilled when we find representatives of typical Coastal Plain genera like *Conradina*, *Orontium*, *Phyllanthus*, and even *Sarracenia* in remote sections of the Cumberland Plateau?

Also, one finds evidence of the further spread of aggressive immigrants from Europe, such as *Geranium columbinum* L., *Malva moschata* L., *Potentilla recta* L., *Sanguisorba minor* Scop.; and of two oriental Lespedezas.

Lastly one may remark, particularly in the case of the indigens whose range extensions are recorded, that known calcicoles and oxylophytes were found restricted to the soil types of which they are well known inhabitants.

The present work would not have been possible without the valued help of certain colleagues and friends. In particular I wish to acknowledge my indebtedness to the following: Messrs. A. J. Sharp and J. K. Underwood, field aids and plant hunters par excellence, whose spirited collaboration at all times was a great inspiration and help. To Mr. C. A. Weatherby I owe much for encouragement and kindly advice, generously given. Dr. H. K. Svenson and Dr. E. T. Wherry contributed many items of interest and importance in a most un-

selfish fashion. The valued assistance of several specialists was had in checking the specific identity of certain plants.

TRICHOMANES PETERSII Gray.¹ On rocks of siliceous nature. Bluff along middle prong of Little River, about five miles beyond Townsend, Great Smoky Mountains National Park, Blount Co. Collected April 11, 1931, *A. J. Sharp, H. M. Jennison and H. Bishop*.² A new station was discovered near the original one in April, 1934, by *A. J. Sharp and H. M. Jennison*.

WOODWARDIA VIRGINICA (L.) Sm. In spongy muck soil over limestone, near Whitwell, Marion Co., associated with *W. areolata*. Coll. May, 1931, *Hobart Massey*.

Specimens of this fern from this station have been filed in The Herbarium of the University of Tennessee.

ASPLENIUM EBENOIDES R. R. Scott.

Anderson³ predicted the possible discovery of this rare fern in Tennessee. Recently Shaver⁴ reported having found it growing at two stations near Nashville in Davidson County and at Beersheba Springs, Grundy County.

THELYPTERIS CRISTATA (L.) Nieuwl. With Sphagnum, in humus over mixture of calcareous and siliceous rocks, Shady Valley Swamp, 2800 ft. elev., Johnson Co., July, 1933, *A. J. Sharp and J. K. Underwood*.

THELYPTERIS PALUSTRIS (Salisb.) Schott var. *PUBESCENS* (Lawson) Fernald. Associated with *Thelypteris cristata* (L.) Nieuwl. and sphagnum in humus over a mixture of calcium-bearing and siliceous rocks. Shady Valley Swamp, 2800 ft. elev., Johnson Co., June 15, 1933, *A. J. Sharp and J. K. Underwood*.

Gattinger⁵ lists this fern and many have seen it in Middle Tennessee, but no specimen of it was kept by him. Svenson⁶ has collected and presented specimens of the fern in question, from Kingston Springs, Cheatham Co., Aug. 20, 1922. *Svenson* No. 269.

THELYPTERIS PHEGOPTERIS (L.) Slosson (Syn. *Phegopteris polypodioides*, Fée). In shallow cold soil, near top of Mt. LeConte, Great Smoky Mountains National Park, Sevier Co. Collected June 25, 1933, by *A. J. Sharp and J. K. Underwood*.⁷

Gattinger reports this species from "Mountains of East Tennessee." Dr. Gattinger may have been mistaken in identifying this fern, as have been many others. There were no Gattinger specimens in

¹ Anderson, W. A. *Am. Fern Journ.* **21** (1931).

² Sharp, A. J. *Am. Fern Journ.* **21** (1931).

³ Anderson, W. A. *Univ. of Tenn. Record.* **6** (1929).

⁴ Shaver, Jesse M. *Am. Fern Journ.* **24** (1934).

⁵ Gattinger, A. *Flora of Tenn.* (1901).

⁶ Svenson, H. K. *Am. Fern Journ.* **20**: 145-146. (1930).

⁷ Sharp, A. J. & Underwood, J. K. *Am. Fern Journ.* **23**: (1933).

the destroyed (Jan., 1934) U. T. Herbarium. Collected subsequently (Sept., 1934) by A. J. Sharp.

WOODSIA SCOPULINA D. C. Eaton. Bluff of Nolichucky River, 4 miles south of Erwin, Unicoi Co. *Edgar T. Wherry*, June, 1933.

"This place was discovered by William A. Knight of Biltmore, N. C., but I was the first to identify the *Woodsia*. (Probably the *W. ilvensis* (L.) R. Br., Gattinger reports is the same thing.) At that locality the fern is unusually luxuriant, which is all the more remarkable in that unlike the other eastern states colonies, it faces east, and is at rather low altitude," E. T. Wherry in letter, Nov. 29, 1933. Gattinger¹ does report *Woodsia ilvensis* (L.) R. Br. as having been collected in Knox. Co., by the late Albert Ruth; but there were no specimens in the U. of T. Herbarium (which included Gattinger's Collection) to substantiate the report.

Specimens of this fern species were collected for the Univ. of Tenn. Herbarium in July, 1934.

PHYLLITIS SCOLOPENDRIUM (L.) Newman (Syn. *Scolopendrium vulgare* Sm.)

Apparently it is only a question of time until the famous isolated colony of this fern, in Marion Co., Tennessee shall have been exterminated. We have known of the situation and have watched it for several years. The station is wholly unprotected and unguarded. Botanical pilgrims from far and near have visited the shrine in the past and some have probably taken away "fragments" of the holy grail. Then too, the natural environment is not conducive to the colony even holding its own. In 1932 we were reliably advised that only about a half dozen plants remained. "In the summer of 1933," reports Dr. E. T. Wherry (letter as of Nov. 29, 1933), "only five (5) plants remain of the former vast colony" I doubt if ever the colony was a vast one, but it certainly is a fast disappearing one. Unless a Fern Society, or an Ecology Society, or Uncle Sam, or someone establishes a monument at the site of this Hart's Tongue fern colony, and protects it, it will be just a question of time until somebody will propose erecting a memorial to mark the spot.

LYCOPODIUM LUCIDULUM Michx. var. POROPHILUM (Lloyd and Underwood) Clute. In cold wet soil near top of Mt. LeConte, at 6000 ft. elev., Great Smoky Mountain National Park, Sevier Co. Collected May 8, 1933 by *A. J. Sharp*.

ISOETES ENGELMANNI R. Br. var. VALIDA Engelm. In wet humus in creek, Shady Valley Swamp, Johnson Co., 2800 ft. elev. Collected June 14, 1933, by *A. J. Sharp and J. K. Underwood*.

PINUS STROBUS L.

Svenson¹ reported an outpost colony of several trees, which he discovered (Aug., 1922) growing in the summit of the high bluffs south of Craggie Hope, Cheatham Co. This station is well beyond the usual range of this species in Tennessee.

THUJA OCCIDENTALIS L. In shallow soils over dolomite along Clinch River tributaries. Southern outpost, relic colonies in Roan, Anderson, Campbell and Union Counties; Emory Heights station near Harriman, farthest south.

PICEA RUBRA (Du Roi) Dietr. In deep humus over calcareous rocks, Shady Valley Swamp, 2800 ft. elev. June 14, 1933, *A. J. Sharp and J. K. Underwood*. Next nearest (?) station twenty to twenty-five miles (Roan Mt. and White Top Mt.).

It is well known that the Red Spruce occurs abundantly at many places in Tennessee, always, however, at much higher elevations and in or over soils of siliceous origin.

POTAMOGETON PURSHII Tuckerman. In lagoon of Clear Fork River, Morgan Co., about one mile north of Rugby. Coll. June 28, 1933, *H. M. Jennison*.

The specimens collected were immature, and could not therefore be positively identified. However, Prof. M. L. Fernald tentatively refers the material collected to the above named species.

JUNCUS GYMNOCARPUS Coville. Found and collected along Laurel Creek near Bote Mt., Blount Co., Great Smoky Mountains National Park. *A. J. Sharp*, August 21, 1934.

The known occurrence of this species appears to be very limited. Small² says: "Acid swamps; known only on coastal Plain in W. Florida and on Appalachian Plateau in Eastern Pennsylvania."

PANICUM LONGIFOLIUM Torr. Discovered and collected in Tennessee, at Tullahoma, Coffee Co., by H. K. Svenson, at "edge of dried swamp" Aug. 24, 1930. *Svenson* No. 4234. Det. A. Chase.

PANICUM CONSANGUINEUM Kunth. Discovered and collected in Tenn., by H. K. Svenson at "edge of dried out swamp," Aug. 24, 1930, Tullahoma, Coffee Co., *Svenson* No. 4235. Det. A. Chase.

PANICUM TRIFOLIUM, Nash. Discovered and collected in Tennessee, Aug. 24, 1930, Tullahoma, Coffee Co., "dried out edge of swamp." *Svenson* No. 4236. Det. A. Chase.

CYPERUS DIPSACIFORMIS Fernald. Discovered and collected by *A. J. Sharp*, Aug. 28, 1934. Wet, sandy soil along Abrams Creek, near boundary of Great Smoky Mountains Park, Blount Co.

Specimens of this rather odd and striking sedge were found growing in sandy alluvium on the flood plain of a creek in the southern Ap-

¹ Svenson, H. K. *RHODORA* 27: 27, 28 (1925).

² Small, J. K. *Manual of the Southeastern Flora* (1933).

palachians at an altitude of about 1500 feet above sea level and many miles inland from its best known habitations in the coastal plain province. This is the first report, as far we know, of the occurrence of this species in Tennessee.

RYNCHOSPORA CAPILLACEA Torr. Wet soil near Cedar Creek, Campbell Co., July 4, 1933, *J. K. Underwood*.

CAREX RUTHII Mackenzie. This rare mountain sedge we find in rich wet soil at "Grassy Patch," Great Smoky Mountains National Park, Sevier Co., at 4000 ft. elev. Coll. Aug. 12, 1930 by *J. K. Underwood*.¹ Also, in wet rich soil, Roan Mt., 6000 ft. elev., Carter Co., July 11, 1931, *J. K. Underwood*.

CAREX EBURNEA Boott. This sedge has been collected several times in East Tennessee within the past forty years, but was first turned up in Middle Tennessee by H. K. Svenson as noted. Limestone soils on dry slope of bluffs, Trumble Creek. Craggie Hope, Cheatham Co., Aug. 22, 1930, *Svenson*, No. 4210. Vide *J. K. Underwood*, l. c.

CAREX PLATYPHYLLA Carey. Limestone soils, Clinch River watershed, Roan, Union, Grainger and Campbell counties, 1933, *J. K. Underwood*.

A specimen of what proves to be this species was collected at Emory Heights, Roan Co., in 1898 by T. H. Kearney. Vide *J. K. Underwood*, l. c.

CAREX LAXICULMIS Schwein. Paradise Ridge, Oak Barrens, Middle Tennessee. Legit *Dr. A. Gattinger* (no date). Low ground in woods along a stream near Lea Lakes, Blaine, Grainger Co., June 17, 1931, *J. K. Underwood*. Moist alluvial soils, Union Co. and Johnson Co., summer 1933, *J. K. Underwood*.

What appears to be the above named species was reported by Gattinger as *C. digitalis*, occurring in "low ground over the state." A single sheet in the Gattinger Collection originally at the University of Tennessee is all we had to support Gattinger's record. Later day collections in East Tennessee by *J. K. Underwood* more or less substantiate Gattinger's statement.

CAREX CHEROKEENSIS Schwein. This rare species was found growing in the cedar glades at Lavergne, Rutherford Co., by *H. K. Svenson*, June, 1930.

CAREX FOLLICULATA L. In the wet humus, Shady Valley Swamp, 2800 ft. elev. Johnson Co., June 14, 1933, *J. K. Underwood*. Not before reported from Tennessee.

CAREX ROSTRATA Stokes. A sedge of the north country heretofore not known to occur farther south than Delaware. Discovered last summer (1933) in upper East Tennessee. In shaded wet, boggy

¹ Underwood, *J. K.* Journ. Tenn. Acad. Sci. 7: 104 (1932).

places, Shady Valley Swamp, 2800 ft. elev., Johnson Co., June 14, 1933. *J. K. Underwood and A. J. Sharp*. Vide *J. K. Underwood*, l. c.

CAREX PROJECTA Mack. In wet humus. Shady Valley Swamp, Johnson Co., first collected in Tennessee, June 14, 1933, by *J. K. Underwood*.

CAREX CRAWFORDII Fernald. With grasses in moist rich soil in open "park" at 4200 ft. elev., on Roan Mt., Carter Co., July 11, 1931, *J. K. Underwood*.

ARISAEMA NEPHENTHOIDES Mart. Persisting on places where planted and later abandoned in region around Knoxville. An occasional plant offered for sale at the Market House in Knoxville. Specimen formerly in U. of T. Herbarium, (destroyed in Morrill Hall fire, Jan. 18, 1934). Coll. spring 1932, *H. M. Jennison*.

XYRIS TORTA Smith. Specimens collected by Gattinger (1881), the writer (1930) and possibly others were identified as *X. flexuosa*, a name now to be replaced by *X. torta* Sm. Damp sandy soil in "oak barrens" near Mayland, Cumberland Co., July 12, 1930, *H. M. Jennison*. Moist places, gravelly oak woods six miles east of Crossville, Cumberland Co., *H. K. Svenson* No. 4155.

BELAMCANDA CHINENSIS (L.) DC. "Introduced (?)".¹ Collected in isolated place, Brown's Mt., Knox Co., June 1925, *H. M. Jennison*. Abundant in isolated places, Clinch River watershed, *A. J. Sharp*, 1933.

Gattinger wrote in 1901: "Very abundant, I collected it already fifty years ago in the remotest mountain glens, and think it is really indigenous, not naturalized from Asia."

HABENARIA LACERA (Michx.) R. Br. Found growing in deep moist humus in woods. Coll. in Shady Valley Swamp, Johnson Co., at 2800 ft., elev., June 14, 1933, *J. K. Underwood and A. J. Sharp*.

Gray's Manual (1908) gives distribution as "wet or moist open ground, Nfd. to Minn., southward to Mo. and Ala."

EPIPACTIS PUBESCENS (Willd.) A. A. Eaton. As predicted by Gattinger this orchid was collected in the high mountains of East Tennessee, but a remarkable discovery by *H. K. Svenson* in 1930 extends its range to Middle Tennessee. "In leaf mould, summit of bluff along Turnbull Creek, Cheatham Co., Aug. 22, 1930," *Svenson* No. 4215.

LISTERA SMALLII Wiegand. In rich wet humus, Shady Valley Swamp, Johnson Co., 2800 ft. elev., coll. June 18, 1933, *H. M. Jennison and A. J. Sharp*.

BUCKLEYA DISTICHOPHYLLA (Nutt.) Torrey. "One of our rarest plants," said Sargent, but Paint Rock, Cocke Co., was *not* "only place in America" (*ibid.*) where it grew wild. The Paint Rock colony has been destroyed. Coll. at Wolf Creek, 1500 ft., elev. 1928, 1930, 1932. *H. M. Jennison*.

The late *W. W. Ashe* recalled having collected it on the south fork

¹ Robinson, B. L. & Fernald, M. L. Gray's New Manual of Botany (1908).

of Holston River and certain of its tributaries in southwest Virginia and Tennessee, and he also recalled having seen it along waters of Pigeon River and in Haywood Co., North Carolina. Sept., 1933, A. J. Sharp and J. K. Underwood discovered a colony of this rare shrub along the banks of a stream tributary to the Holston River in Johnson Co., Tennessee. "On Bluff of Nolichucky River four miles south of Erwin" reports E. T. Wherry in a letter of Nov. 29, 1933. "Another rarity," he continues, "but the natives are cutting the hemlocks, so it is likely to be exterminated there."

SUMMARY: Occasional in sandy soils under hemlocks, banks of streams tributary to Holston and French Broad Rivers.

POLYGONUM OPELOUSANUM Riddell. A plant of the coastal plain and adjacent provinces. Discovered and collected in Coffee Co., Tenn., Aug. 24, 1930 by H. K. Svenson. Found growing at "margin of swamp." *Svenson* No. 4233.

RANUNCULUS LAXICAULIS (T. & G.) Darby. Gattinger catalogues *R. obtusiusculus*, as occurring in "ponds along the Cumberland River," but we did not have a single specimen of this species in the old U. T. Herbarium until collections of it were made in the Shady Valley Swamp, 2800 ft. elev., Johnson Co., August 1933, *A. J. Sharp and J. K. Underwood*. "Chiefly at low altitudes."¹ All our specimens of this species were destroyed by fire on Jan. 18, 1934.

RANUNCULUS ALLEGHENIENSIS Britton. Known to occur in the Blue Ridge and more northerly provinces, but not heretofore reported from Tennessee. Collected at middle elevations, Rip-shin ridge, base of Roan Mt., Carter Co. *A. J. Sharp*, May, 1934.

CALTHA PALUSTRIS L. Found in muck soil in Shady Valley Swamp, Johnson Co., by *A. J. Sharp and J. K. Underwood*, May 1934. Gattinger reported having found it in "boggy mountain meadow, Ducktown," but there was no specimen in the Gattinger herbarium (destroyed in the Morrill Hall fire Jan. 18, 1934).

DROSERA ROTUNDIFOLIA L. Discovered growing in sand and humus in "pockets" on sandstone cliff along a creek, in a forested area. Coll. near Allardt, Fentress Co., *A. J. Sharp*, Nov. 1933, June, 1934. Collected in a boggy place near Clark Range, Fentress Co., Oct. 1934, *H. M. Jennison*.

SARRACENIA sp.

Gattinger reported *Sarracenia purpurea*, L. occurring in "low grounds along Mississippi, Tennessee and Buck Rivers, April." We have never relocated and to the best of my information Gattinger's report has never been substantiated. There were no Tennessee exsiccatae of this species in the Gattinger Collection at the University of Tennessee.

Believing that one or more species of *Sarracenia* should be found growing wild in the Cumberland Plateau region, we have been con-

¹ Robinson, B. L. & Fernald, M. L. Gray's New Manual of Botany (1908)

stantly on the watch for specimens. Recently (13th Oct., 1934) we succeeded in finding a single plant in a bog near Clark Range, Fentress Co. No flowers or fruits were found so it was quite impossible for us to determine the specific identity of the specimen. An overly enthusiastic member of the party dug the only plant found, but we transplanted it promptly in sphagnum and soil from its native habitat, hoping that it would survive and subsequently flower.

SEDUM ROSEUM (L.) Scop. Occurring on some of the high tops of Southern Appalachian mountains.

Wherry "found it practically exterminated by the natives, who grow it in buckets around their cabins." E. T. Wherry, letter of Nov. 29, 1933.

PARNASSIA GRANDIFOLIA DC. Heretofore unknown from Tennessee. In cold wet humus over dolomite rocks, border of woods along Cedar Creek, Anderson Co., July 4, 1933, *A. J. Sharp and J. K. Underwood*.

This station will have been inundated a year or two hence when the Norris Lake basin fills.

RIBES CURVATUM Small. Not heretofore reported to be growing wild north of Stone Mt. Georgia (It appears to have "escaped" in the vicinity of Highlands, North Carolina, where it was planted several years ago). Discovered growing in abundance in well-drained rocky soil along creek near Pikeville, Bledsoe Co., by "A White Pine Blister-rust Scout," May, 1934. Later (July 14, 1934) collected near Whitwell, Hamilton Co., by *J. K. Underwood and A. J. Sharp*. Specimens in U. of T. Herbarium.

RIBES LACUSTRE (Pers.) Poir. The above-named species was discovered growing in a colony of considerable size near the top of Mt. LeConte, 6300 ft. elev., Great Smoky Mountains National Park. Coll. *A. J. Sharp*, Aug. 1934.

WALDSTEINIA FRAGARIOIDES (Michx.) Trattinick. Reported by Svenson¹ from collections made along the Turnbull River near Craggie Hope, Cheatham Co., Aug. 1922.

This species is quite common in the river-valleys in East Tennessee.

POTENTILLA RECTA L. Poor soil, creek bottoms, upper East Fork of Little River, Great Smoky Mountain National Park, Sevier Co., June 30, 1928, *H. M. Jennison*. In alluvial soil along a stream, near road over Holston Mt., Sullivan Co., June 14, 1933, *A. J. Sharp and J. K. Underwood*.

Well known in waste places, Maine to Ontario, New York, Virginia and Michigan. Not reported by Gattinger. Evidently be-

¹ Svenson, H. K. *RHODORA* 27: 27, (1925).

coming more wide spread through being introduced locally, in one way or another.

RUBUS TENNESSEANUS L. H. Bailey.¹ Found in soils of siliceous origin on Rich Mountain, Great Smoky Mountain National Park, Sevier Co. Coll. Aug. 1933, *L. H. Bailey*.

SANGUISORBA MINOR Scop. In clay soil, open field near a garden, Knoxville, Knox Co., 1925, *H. M. Jennison*.

LESPEDEZA SERICEA Miq. Introduced from the Orient; for some years known to be naturalized and wide-spread in Eagle Creek Valley, Overton Co.

LESPEDEZA STIPULACEA Maximowicz. Naturalized from Korea. Now widely established in Middle Tenn., and known to be quite widely naturalized throughout the Mississippi River basin.

GERANIUM COLUMBINUM L. With grasses and *Potentilla recta* L., in alluvium near a stream along highway; probably the site of a road camp. Holston Mt., Sullivan Co., June 14, 1933, *A. J. Sharp and J. K. Underwood*.

A European introduction of more or less frequent occurrence in waste places in northern parts of the coastal plain province. Its discovery in 1933 in upper East Tennessee was a surprise.

PHYLLANTHUS CAROLINENSIS Walt. In moist sandy soil, base of eastern front of the Cumberland Mountains, near Speedwell, Claiborne Co., Oct. 15, 1933. *H. M. Jennison and A. J. Sharp*.

This species appears to be the only one representing this tropical genus, which has migrated very far into the United States. We discovered its occurrence in Tennessee last fall (1933).

PACHYSANDRA PROCUMBENS Michx. Specimens sent to U. T. by *Mrs. M. M. Betts*, who collected the plants in the vicinity of Memphis, April 1932.

This species is quite frequently collected in the woods in the hilly eastern part of Tennessee. *Mrs. Betts'* collection from a station near Memphis is from a point over 200 miles west of the well established range of the species.

BERCHEMIA SCANDENS (Hill) Trel. In alluvial soil near creek near Jasper, Marion Co., May 2, 1931, *H. M. Jennison and A. J. Sharp*; also collected by *E. J. Alexander* near White Creek south of Rockwood, Roan Co., Oct., 1933.

The latter station is considerably north of previously reported localities in Tennessee.

VITIS BAILEYANA Munson. In calcareous soil at roadside near Fountain City, Knox Co., coll. Aug. 1933, by *L. H. Bailey*. "Common

¹ Bailey, L. H. *Gentes Herbarum*, 3: 270 (1934).

along French Broad River," according to W. W. Ashe who collected it in Cocke Co. (L. H. Bailey letters Dec. 5-18, 1933).

HYPERICUM GRAVEOLENS Buckley. In wet sandy alluvium, edge of Roaring Fork Creek, 4500 ft., elev., Mt. LeConte, Great Smoky Mountain National Park, Sevier Co., June 25, 1933, *A. J. Sharp*. Roan Mountain, Carter Co., July 27, 1889, *F. Lamson-Scribner*. In wet soil with sedges, swamp rose and other plants, Shady Valley Swamp, Johnson Co., 2800 ft. elev., June 14, *A. J. Sharp and J. K. Underwood*.

Gattinger reported this species from "Summit of Thunderhead" (mountain), but from this one cannot tell whether the station is in Tennessee or North Carolina. We now have records to prove that this plant occurs on the Tennessee side of the high mountains.

HYPERICUM MITCHELLIANUM Rydb. Specimens of this species were found and collected in Tennessee on Mt. Collins, at about 5000 ft. elev., in the Great Smoky Mountains National Park. *A. J. Sharp*, Aug. 6, 1934.

HYPERICUM ELLIPTICUM Hook. In wet soil, open field. Coll. near Elizabethton, Carter Co., June 14, 1933, *A. J. Sharp and J. K. Underwood*.

HYPERICUM VIRGINICUM L. With sedges in wet humus, Shady Valley Swamp, Johnson Co., 2800 ft. elev., coll. Aug. 22, 1933, *A. J. Sharp and J. K. Underwood*.

VIOLA RENIFOLIA A. Gray. A distinctly northern species, found in "Arbor Vitae swamps and cold woods, Nfd. to the Mackenzie R., south to N. E., Pa., Mich., and Minn." Plants (probably not seen by Brainerd) collected on summit of Thunderhead Mountain, 5530 ft. elev., July 1888, *Gattinger* were named *V. renifolia* Gray. See also *Gattinger*.

I am of the opinion that *Gattinger* was in error in the case referred to above, because (1) the station which is in Blount Co. at an elevation of 5530 ft. is far to the south of the known range of the species; (2) the habitat is extremely dissimilar, not only in the absence of arbor vitae, but also in having soils of siliceous origin; (3) the specimens named by *Gattinger* (originally in the U. of T. Herbarium) had glabrous leaves of cordate, not reniform shape, and at least one of the plants had a distinct runner.

MALVA MOSCHATA L. In fine textured soil at roadside near Cole Place, Shady Valley, 2800 ft. elev., June 18, 1933, *H. M. Jennison and A. J. Sharp*.

Gattinger predicted the occurrence of this species in Tennessee on his knowledge of its occurrence in south west Virginia. It was discovered growing in upper East Tennessee last summer (1933).

ANGELICA ATROPURPUREA L. Border of woods, Shady Valley

Swamp, 2800 ft. elev., Johnson Co., June 14, 1933, *J. K. Underwood and A. J. Sharp*, 33-167.

An extension of range southward from the latitude of Delaware.

CORNUS OBLIQUA Raf. A recent find, occurring in moist soils of limestone origin. Collected on bluffs along Cedar Creek near La Follette, Campbell Co., June and July 1933; *J. K. Underwood*.

A well known inhabitant of low places, near swamps, ponds and lakes in Indiana, especially at the north.

KALMIA CAROLINA Small. In deep humus over limestone bed rock in Shady Valley Swamp, Johnson Co., June 1933, *A. J. Sharp and J. K. Underwood*.

EPIGAEA REPENS L. "Sparingly in deciduous and *Pinus virginiana* woods. Not otherwise seen in Middle Tenn." *H. K. Svenson*, in sched. No. 4212, coll. Aug. 22, 1930. Craggie Hope, Cheatham Co., Tenn.

Gray's Manual gives the distribution of this as follows: "Nfd. to Sask., Wisc., Mich., Ky., and Fla." Gattinger catalogues it and gives its distribution as: "Cumberland and Alleghany Mts."

The fruits of this species are not commonly developed it seems, but during the spring of 1933 we found and collected plants with fruit, several times. Again in 1934 plants with fruit were collected.

GAYLUSSACIA BRACHYCERA (Michx.) Gray. Found growing in sandy soils, Fentress Co., along Clear Fork River, near Rugby, July 13, 1930, *H. M. Jennison*. Morgan Co., also near Rugby, Aug. 19, 1930, *H. K. Svenson*. Three miles south of Allardt, Fentress County, May 15, 1931, *Essary, Jennison, Sharp and Underwood*.

Gattinger reported this species from "Slopes of Alleghanies," Parksville, Ocoee River, Polk Co. This station is far to the south of the known stations for this species, and as far as I am aware, it has never since been relocated at Gattinger's station. There were no specimens of the species in question from Parksville in the Gattinger collection in the U. T. Herbarium.

VACCINUM MACROCARPON Ait. This cranberry, well known in the northeastern United States, was recently discovered growing in a boreal relic bog in upper East Tennessee. With sphagnum in cold peat. Shady Valley Swamp, 2800 ft. elev., Johnson Co., June 14, 1933, *A. J. Sharp and J. K. Underwood*.

BARTONIA LANCEOLATA Small. Plants identified as being this species were found growing in a wet acid bog having a sandstone sub-soil, near Clark Range, Fentress Co. Collected Oct. 13, 1934, *H. M. Jennison*.

BARTONIA PANICULATA (Michx.) Robinson. Found and collected in Tennessee by *H. K. Svenson*. Its occurrence in this state is known

to us only through his record: "A few plants in a dense swamp," Hollow Rock Junction (Bruceton), Carroll Co., August 31, 1930. *H. K. Svenson* No. 4382.

ASCLEPIAS PERENNIS Walt. Our herbarium records indicate that this milkweed is a coastal plain endemic. At any rate its occurrence and distribution in Tennessee is indicated by the following: Forked Deer River bottoms near Henderson, Chester Co., *S. M. Bain* 161; "River Bottoms through West Tennessee," along Forked Deer River, Haywood Co., *S. M. Bain*, June 1893; swamp. Shiloh, Hardin Co., *H. K. Svenson* No. 4325; low wet sandy places near Reelfoot Lake, Obion Co., *Jason R. Swallen*, No. 2143.

PHLOX OVATA L. Occurs scattered through five counties in East Tennessee, *viz.*, Cocke, Hamilton, Hawkins, Knox and Roan, according to Wherry.¹

"A northern Blue Ridge species enters the state. Gattinger had it listed, but he misapplied the name to *P. carolina*, so its authentic report in the state is new." E. T. Wherry, letter of Nov. 29, 1933.

PHLOX STOLONIFERA Sims.

"A northern Appalachian species, reaches a southeastern limit in the state, being known in three eastern marginal counties; Cocke, Polk and Sevier. Gattinger knew it (as *P. reptans*) only in Polk Co." E. T. Wherry, letter of Nov. 29, 1933.

PHLOX BIFIDA Beck.

Recorded and distributed by Gattinger as *P. stellaria*, from the Cedar glades near Lavergne, Rutherford Co. Wherry has shown this to be the only place in Tennessee where it occurs.

"The rare variety *stellaria* (only 6 stations known) reaches its southeastern limit here (Lavergne). I rediscovered Gattinger's locality, just north of Lavergne, in cedar glades." E. T. Wherry, letter of Nov. 29, 1933.

PHLOX SUBULATA L. var. *AUSTRALIS* Wherry.

Gattinger lists *Phlox subulata* but apparently did not know of its occurrence in Tennessee. He based his inference on collections of this species by J. K. Small on Kates Mountain, West Virginia. Recently (1929) Wherry, Jennison and others have collected it on shale hills near Lea Lakes, Grainger Co.

CONRADINA VERTICILLATA H. M. Jennison² (Syn. *C. montana*, Small³). Relic colonies in sandy banks along Clear Fork River, Fentress and Morgan Counties about one mile north of Rugby. Coll. July 14, 1930, *H. M. Jennison*, May 16, 1931; *H. M. Jennison and*

¹ Wherry, E. T. *Bartonia* No. 11 (1929).

² Jennison, H. M. *Journ. Elisha Mitchell Sci. Soc.* 48: 268 (1933).

³ Small, J. K. *Manual of the Southeastern Flora* (1933).

A. J. Sharp, May 28, 1932; *Mrs. Chas. Brooks*; May 28, 1933, *H. M. Jennison*.

The type specimen was destroyed in the Morrill Hall fire on 18th January, 1934. Isotypic specimens were collected May 31, 1934 by *H. M. Jennison* and *A. J. Sharp*.

Considerable exploring in this vicinity (Rugby) as well as in similar habitats in the region has failed to turn up other stations where this endemic grows.

LINARIA CANADENSIS (L.) Dumort. In clay soil of calcareous nature, Sequatchie Valley, near Dunlap, Sequatchie Co., May 3, 1931, *H. M. Jennison* and *A. J. Sharp*. (Specimens destroyed in Morrill Hall fire, Jan. 1934.)

A plant of the coastal plain province.

Gattinger reports the occurrence of this species in Tenn. He collected it at the summit of Lookout Mountain, July 8, 1880.

Fifty-one years later we found about an acre of farm garden near a house covered with specimens of the plant. This was at a lower elevation and at a place some miles farther north in Tennessee.

PENSTEMON BREVISEPALUS Pennell.

"A new species of the Cumberland Plateau and country westward that I first saw at Crossville in 1923. This is to appear in Small's Manual of the Southeastern Flora, and also in my account of the Scrophulariaceae of Eastern North America."—*F. W. Pennell's* letter of Dec. 7, 1933.

CHELONE GLABRA L. var. *ELONGATA* P. & W. Wet woods in bottom land of the Mississippi embayment of Western Tennessee. *Pennell and Wherry*.¹

CHELONE OBLIQUA L. "Found in wet wood and cypress swamps—throughout Western Tennessee," *Pennell and Wherry*.

CHELONE MONTANA var. *ELATIOR* (Raf.) P. & W.

Pennell and *Wherry* say it is the most common typical Appalachian "Turtle head" along stream banks and swamps in mountain forests from northern Georgia to eastern Kentucky and southern Pennsylvania. In Tennessee (*E. T. Wherry*, letter of Nov. 29, 1933).

PEDICULARIS LANCEOLATA Michx. In a swamp along U. S. Route 25E near Knox-Union Co. line. Oct. 15, 1933, *H. M. Jennison* and *A. J. Sharp*.

Indigenous in the north but reported from places as far south as Virginia and North Carolina. Now positively known to grow in

¹ *Pennell, F. W. and Wherry, E. T. Bartonia, 1927-28.*

Tennessee, though not common nor widely distributed, as far as we know.

SCHWALBEA AMERICANA L.

Gattinger reported this from Tullahoma; but there were no corroborative specimens in the Gattinger Collection in the University of Tenn. herbarium. "None of us who have looked for it in recent years have been able to rediscover it." E. T. Wherry, letter of Nov. 29, 1933.

SHERARDIA ARVENSIS L. Average sized specimens of this species were found growing in clay loam at border of recently seeded athletic field, University of Tennessee Campus, Knoxville, Knox Co. Discovered and collected by *Nina A. Shipe*, June 19, 1928.

EUPATORIUM VERBENAEFOLIUM Michx. Gattinger reports this as having been collected at "Hampton, East Tenn.," by the late Albert Ruth, but Gattinger left no specimens of it in his herbarium. However, by way of corroborating Gattinger's record, I can report its occurrence in East Tennessee, as follows: (1) East of Isabella, Polk Co., Sept. 15, 1930, *A. J. Sharp*; (2) Waste ground, rear of 1905 Prospect Place, Knoxville. *H. M. Jennison*, Sept. 1934.

ASTER SCHREBERI Nees. Shallow soil over dolomite rocks. Bluffs along Cedar Creek, Campbell Co., coll. July 4, 1933. *A. J. Sharp and J. K. Underwood*.

Heretofore distribution given as: New England to Michigan and Virginia.

ASTER TARDIFLORUS L. Wet limestone soil in woods. Bluff along Powell River near Arthur, Claiborne Co. Collected August 28, 1933. *A. J. Sharp and J. K. Underwood*.

HELIANTHUS ANGUSTIFOLIUS L. The "swamp sunflower" was long ago reported in Tennessee by Gattinger from "Craggy Hope, Cheat-ham Co., and in West Tenn.," but its occurrence on the Cumberland Plateau has not heretofore been recorded, as far as I know. Collected in an acid soil bog near Clark Range, Fentress Co., Oct. 13, 1934. *H. M. Jennison*.

CENTAUREA MACULOSA Lam. In sterile soil in abandoned field. Coll. Aug. 28, 1933, Speedwell, Claiborne Co., *A. J. Sharp and J. K. Underwood*.

CREPIS CAPILLARIS (L.) Wallr. Adventive from Europe; heretofore reported from Connecticut, New York, New Jersey, and Pennsylvania. Discovered growing in upper East Tennessee, summer 1933. In light soil, Shady Valley, 2800 ft. elev., Johnson Co., June 14, 1933, *A. J. Sharp and J. K. Underwood*.

THE UNIVERSITY OF TENNESSEE,
Knoxville.